**Supplementary Table1. Primers for real-time PCR**

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| --- | --- | --- |
| **Genes** | **Forward Primer** | **Reveres Primer** |
| N-MYC | GCAGAATCGCCTCCGGATCC | ACGTGGAGCAGCTCGGCATC |
| CyclinD1 | AGAAGGAGGTCCTGCCGTCC | GGTCCAGGTAGTTCATGGCC |
| PTCH1 | TCGAGACCAACGTGGAGGAG | CCGAGTCCAGGTGTTGTAGG |
| Gli1 | CCAGCCAGAGAGACCAACAG | GTGCGGATAACCGTCTGCAG |
| Nanog | CCCCAGCCTTTACTCTTCCTA | CCAGGTTGAATTGTTCCAGGTC |
| SOX2 | GCCGAGTGGAAACTTTTGTCG | GGCAGCGTGTACTTATCCTTCT |
| OCT4 | AACAATGAGAACCTTCAGGAGA | CTGGCGCCGGTTACAGAACCA |
| ACTIN | CGAGCACAGAGCCTCGCC | GCGAAGCCGGCCTTGCAC |

**Supplementary Table 2.** Patient characteristics at initial diagnosis

|  |  |
| --- | --- |
| **Characteristic** | **No. of patients (%)** |
| **Sex**  Male  Female | 41(57.7%)  30(42.3%) |
| **Age, y**  Median(range) | 16(8–49) |
| **Anatomic site**  Femur  Tibia  Humerus  Fibulars  Ilium  Ischium  Cervical vertebrae  Lumbar vertebrae | 37(52.1%)  19(26.8%)  6(8.5%)  4(5.6%)  2(2.8%)  1 (1.4%)  1 (1.4%)  1 (1.4%) |
| **Enneking staging**  ⅡB  Ⅲ | 56 (78.9%)  15 (21.1%) |

**Supplementary Figure 1.** The IC50 of DGT in hfob1.19 and MSC1#, MSC2# cells measured by MTT assay.

**Supplementary Figure 2.** A. Test the toxicity of DGT to the mice. Briefly, 4-group mice were treated with different dose of DGT, after 10days, the body weight were measured and analysis. (600mg/kg DGT is slightly hard to dissolve in vehicle); B and C, The effects of DGT on the mice weight in Figure4 A and C.

**Supplementary Figure 3.** Pathological changes were observed in vital organs (heart, livers, kidney and lung) from mice treated with DGT, as detected by HE staining.

**Supplementary Figure 4.** The weights of lungs from mice described in Figure 5E and F.

**Supplementary Figure 5.** Clinical relevance of Gli1 expression in human osteosarcoma specimens.A and B, Representative immunohistochemical staining of Gli1 from 71human OS tissues. C, Overall survival was significantly higher in thelow-Gli1-expression group (P = 0.031).

**Supplementary Figure 6.** The mRNA changes in Gli1 target genes, including PTCH1, Gli1and N-myc, in U2OS cells treated with DGT detected by qPCR.

**Supplementary Figure 7.** IHC analyses of the selected proteins indicated that the DGT-treated tumor tissues from the mice in Fig. 4A expressed decreased Gli1, phospho-Akt and phospho-ERK but increased phospho-GSK3β.